REMARKS

Reconsideration and allowance are respectfully requested in light of the above amendments and the following remarks.

At the outset, it is noted that an IDS filed July 19, 2005 has not been indicated as considered. An indication of consideration thereof by return of an initialed copy of the PTO-1449 is requested.

At page 2, lines 13-15, the final rejection notes the sentence in the specification at page 1, lines 22-25 and proposes that, in this sentence, the Applicant defines "transport block" as a unit just before division of data and "code block" as a unit that was connected after each transport block and further being divided. The Final Rejection notes that this sentence is vague.

However, the Applicant respectfully submits that the final rejection has taken this sentence out of context, and to be properly understood, this sentence must be read in light of the whole application.

More particularly, the Applicant respectfully submits that the sentence at application page 1, lines 22-25 must be read in light of Fig. 5 and the description of Fig. 5 in the application. Fig. 5 clearly shows concatenated transport blocks each having CRC bits appended thereto, with the concatenated transport blocks being divided to form code blocks. The

specification at page 2, fourth paragraph, states that "the CRC-bit is added at the end of each data group called a 'transport block' by CRC coding processing which is executed prior to code block segmentation. That is, CRC-bits are added for every transport block."

It is submitted that, when the specification and Fig. 5 are read as a whole, it is clear that the "code block" is the unit on which error correction is performed, and the "transport block" is a unit where CRC bits are added.

This is consistent with the attached definition from J. Korhonen, "Introduction to 3G Mobile Communications, Second Edition," Artech House, 2003, page 124, which states that a CRC is a set of redundancy bits added to a transport block to yield a block of encoded data.

In view of all of the above, the sentence at page 1, lines 22-25 of the specification is clarified by the above amendments, and specifically, the sentence now more accurately conforms to the Japanese text of the original PCT application.

The final rejection reasserts that rejection of claims 34-51 under 35 USC 103 as obvious over Kato (USPN 5844918). The Applicant respectfully traverses.

The final rejection states at page 2, lines 17-19 that "With this being in mind, one can understand the CRC is calculated on a

plurality of bits, hence, CRC is code blocks have to have more than one "transport block" according to the Applicant's definition." However, the statement "CRC is code blocks" is not appreciated because it appears to equate CRC bits with code blocks. To say that a CRC is a code block is incorrect because, as noted above, a CRC involves adding a set of redundancy bits to a transport block to yield a block of data encoded with a CRC.

In accordance with the proper definitions of "transport block," "code block" and "CRC," Figs. 5a-5d of Kato show basic data BD divided to form transport blocks to which CRC bits have been added. Specifically, Fig. 5b shows transport blocks (see col. 9, lines 18-23), and Fig. 5d shows concatenated transport blocks to which CRC bits have been appended. Fig. 5 of Kato does not show any segmentation of the concatenated transport blocks. And, from the above, it is clear that the proposal in the final rejection that Fig. 5d of Kato shows a "code block" comprising plural transport blocks is clearly unfounded.

In view of the above-noted precise definitions, a block in Kato, corresponding to the "transport block" of the present application and claims, is the "divided data" of Fig. 5b which is described in col. 9, lines 18-23. And, contrary to the proposal in the final rejection, the "basic data" BD of Kato is not analogous to the "transport blocks" of the present application.

Moreover, the present specification, at page 1, third paragraph, states that "Code block segmentation is a means for uniformly dividing data and it is the means used to send large amount of data when the whole data to be sent is divided into a plurality of blocks and subjected to error correcting coding one by one instead of subjecting the whole data to be sent to an error correcting coding." That is, the "code block" is a unit for being subjected to error correcting coding.

In contrast, Kato's block on which error correction encoding is performed is the "Basic Data (BD)" in accordance with Kato's statement that "The basic transmission data AD corresponds to a BCH code. More specifically, the basic transmission data AD is changed to the BCH code by appending a BCH-based parity code (BCHD), which acts as an error correcting parity code, to the basic data BD. An encoder 5 carries out the generation of the basic transmission data AD from the basic data BD." See, Fig. 5a and the discussion at col. 9, lines 10-17. Kato's basic data BD is not obtained as a result of segmenting.

From the above points, it should be apparent that Kato is utterly devoid of any teaching or suggestion of any "code block segmentation unit" that segments the concatenated transport block into code blocks. Further, Kato's basic data BD do not comprise a plurality of transport blocks. Further, no CRC bits are added

to the beginning of the basic data.

Accordingly, it is submitted that each of the present independent claims patentably distinguishes over Kato by reciting features as follows:

(1) attach CRC bits to plural transport blocks,

(2) concatenate the transport blocks, and

(3) segment the concatenated transport block into code blocks including adding a predetermined bit to the beginning of one of the code blocks so that each code block has one of the CRC bits as a last bit thereof,

(4) wherein at least one of the code blocks comprises a plurality of the transport blocks.

Due to at least the above-noted features, it is submitted that each of the present claims is allowable over Kato. The examiners indicated during the interview of June 28, 2005, that such amended claims appear to overcome Kato, but indicated further review and an updated search would be needed. It is submitted that the examiners views during the interview were correct, and that the points in the final rejection are unfounded.

In view of the above, it is submitted that this application is in condition for allowance.

A notice to that effect is respectfully solicited.

If any issues remain that may be best resolved through a telephone communication, the examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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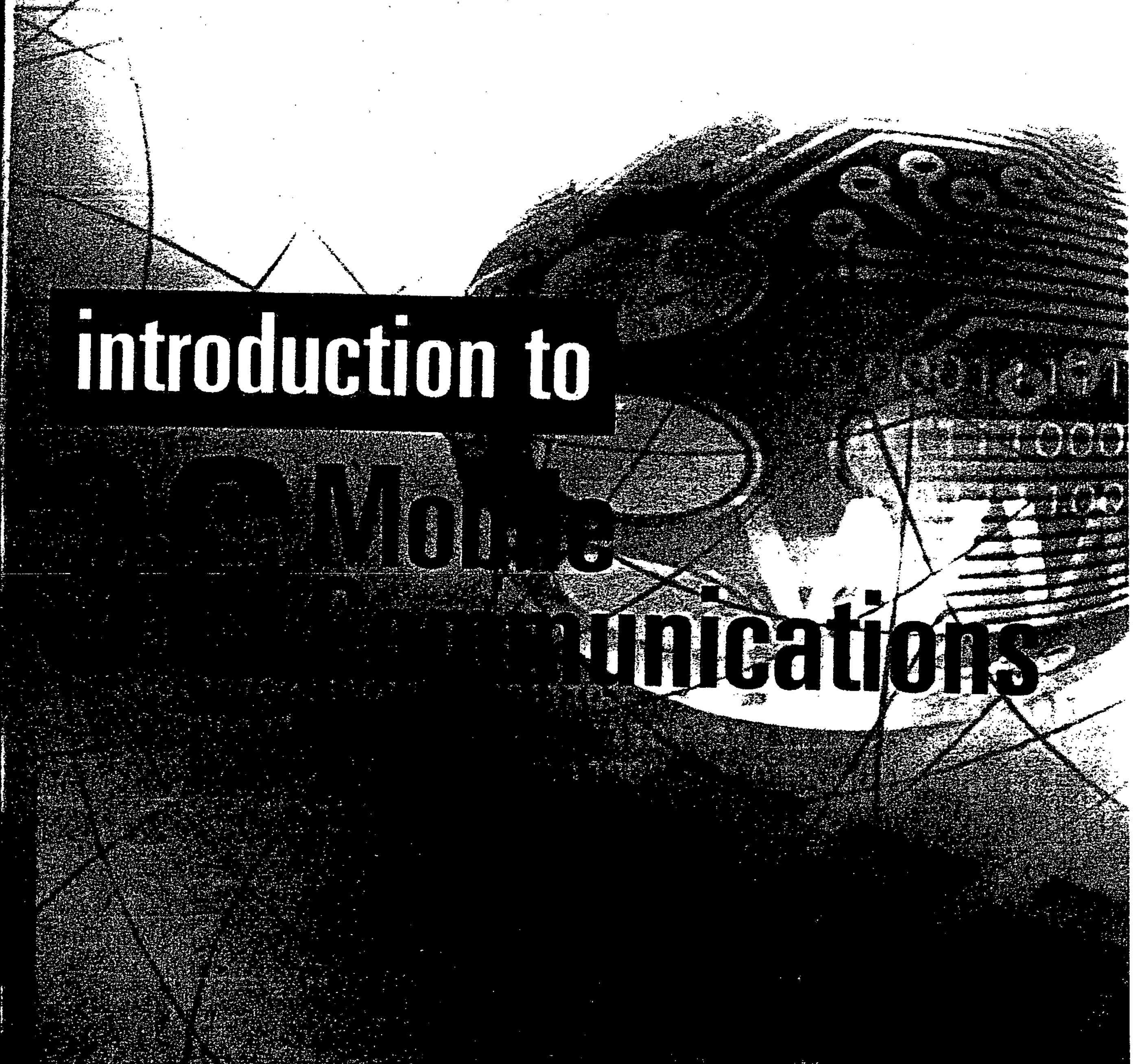

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Depending on how the redundant bits are added to the code word n, the resulting code may be called a systematic or a nonsystematic code. In a systematic code, all redundant bits are added to the end of the code word. In a nonsystematic code, the redundant bits are mixed in with the information bits (see Figure 6.3).

There are 2^k possible information blocks, which can be mapped into 2^n possible code words. As we can see, most of the 2^n code words will be left unused. The set of code words to be brought into use is not chosen randomly, but in a way that maximizes the performance of the channel decoder.

The Hamming distance is the measure of the difference between two code words. For example, if there are two code words a and b:

$a = 100110001$

$b = 100101001$

The Hamming distance $d(a, b) = 2$ because the two code words differ in exactly two bit positions (bits 5 and 6). The smallest distance between all the code words is called the minimum distance d_{min}. It is an important measure as it indicates how good this code is for detecting errors. A minimum distance of i indicates that the channel decoder can detect up to $i - 1$ bit errors. If more bit errors than $i - 1$ are present, then the received code word will be similar to some other valid code word; thus, it could be accepted as correct.

Block codes are often used with an automatic repeat request (ARQ) method. Block codes are very efficient at finding errors, and when they are found, a retransmission of the block can be requested from the peer entity. This scheme requires that the data be block-oriented, the timing constraints with the data not be very tight, and that the user's data be tolerant of delays. Every retransmission adds to the overall transmission delay.

The cyclic redundancy check (CRC) is a common method of block coding. CRC bits are also used in WCDMA. Adding the CRC bits is done before the channel encoding and they are checked after the channel decoding. The size of the CRC field to be added to a transport block can be 0, 8, 12, 16, or 24 bits in WCDMA. The corresponding generator polynomials are given in Table 6.1. The generator polynomial can be explained with an

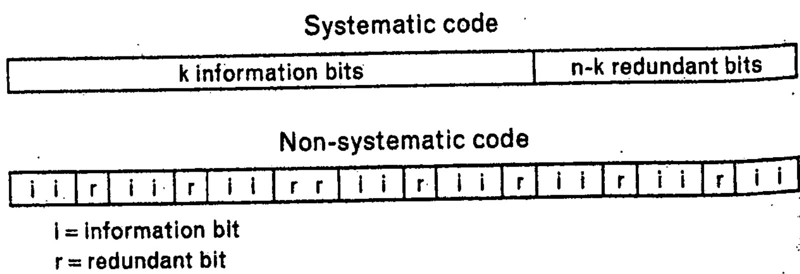

FIGURE 6.3
Systematic and nonsystematic codes.